



Catalog Number DOC026.53.00024

# **Filter Probe sc**

USER MANUAL

January 2006, Edition 1



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# Section 1 Specifications

Specifications are subject to change without notice.

<b>Components</b>	Filter Probe sc with heated hose, two filters, cleaning sponge, and pump
<b>Dimensions</b>	315 × 250 × 120 mm (12.4 × 10 × 4.7 inches) (W × H × D)
<b>Supply Tubing</b>	5 m or 10 m, depending on version
<b>Enclosure</b>	Plastic enclosure, PPE, flammability class in accordance with UL 94
<b>Weight</b>	Approximately 9.5 kg filter enclosure, approximately 8 kg tubing
<b>Power Supply</b>	Through the sc analyzer and sc1000
<b>Electrical Connection</b>	Through the sc analyzer and sc1000
<b>Power Consumption</b>	115–230 VAC 400 VA (brief peak power consumption: 1000 VA), (with 10 m heated Filter Probe sc tubing)
<b>Electrical Fuse Protection</b>	Via analysis instrument and controller
<b>Operating Temperature</b>	4 to 40 °C (39 to 104 °F), in water
<b>Operating Temperature Sample Tubing</b>	–20 to 45 °C (–4 to 113 °F); 95 % relative humidity, non-condensing
<b>Storage Temperature</b>	–20 to 60 °C (–4 to 140 °F); 95 % relative humidity, non-condensing Once the filter have become wet, they must be stored wet.
<b>Sample Temperature</b>	4 to 40 °C (39 to 104 °F), water temperature
<b>Permissible Sample Flow Speed</b>	Maximum 3 meters per second, from 1 m/s: install only with protection against flow (accessory)
<b>Permissible pH Value Of The Sample</b>	5–9
<b>Maximum Immersion Depth</b>	3 m (120 inch)
<b>Fastening to the Extension Pipe</b>	6 screws M5 × 10 mm
<b>Cables and Tubing on the Probe Pipe</b>	Outer sheath of the cables and tubing: UV and weather resistant Total external diameter of the outer tubing: 32 mm (1.2 inch) External diameter of the sample tubing: 3.2 mm (0.12 inch) External diameter of the return tubing: 6 mm (0.23 inch) External diameter of the air tubing: 6 mm (0.23 inch) External diameter of the data cable: 7.1 mm (0.28 inch) External diameter of the power cable: 6.1 mm (0.23 inch)



## Section 2 General Information

### 2.1 Safety Information

Please read this entire manual before unpacking, setting up, or operating this equipment. Pay attention to all danger and caution statements. Failure to do so could result in serious injury to the operator or damage to the equipment.

To ensure that the protection provided by this equipment is not impaired, do not use or install this equipment in any manner other than that specified in this manual.

#### 2.1.1 Use of Hazard Information

**DANGER**

*Indicates a potentially or imminently hazardous situation which, if not avoided, could result in death or serious injury.*

**CAUTION**



*Indicates a potentially hazardous situation that may result in minor or moderate injury.*

**Important Note:** Information that requires special emphasis.

**Note:** Information that supplements points in the main text.

#### 2.1.2 Precautionary Labels

Read all labels and tags attached to the instrument. Personal injury or damage to the instrument could occur if not observed. A symbol, if noted on the instrument, will be included with a danger or caution statement in the manual.

	This symbol, if noted on the instrument, references the instruction manual for operation and/or safety information.
	<p>Electrical equipment marked with this symbol may not be disposed of in European public disposal systems after 12 August of 2005. In conformity with European local and national regulations (EU Directive 2002/96/EC), European electrical equipment users must now return old or end-of life equipment to the Producer for disposal at no charge to the user.</p> <p><b>Note:</b> For return for recycling, please contact the equipment producer or supplier for instructions on how to return end-of-life equipment, producer-supplied electrical accessories, and all auxiliary items for proper disposal.</p>

2.2 Product Overview

The Filter Probe sc is an immersible filtration system that is operated using an sc controller. When connected to an AMTAX sc or PHOSPHAX sc it supplies the analyzer with a filtered sample flow. The Filter Probe sc features automatic cleaning and is low maintenance.

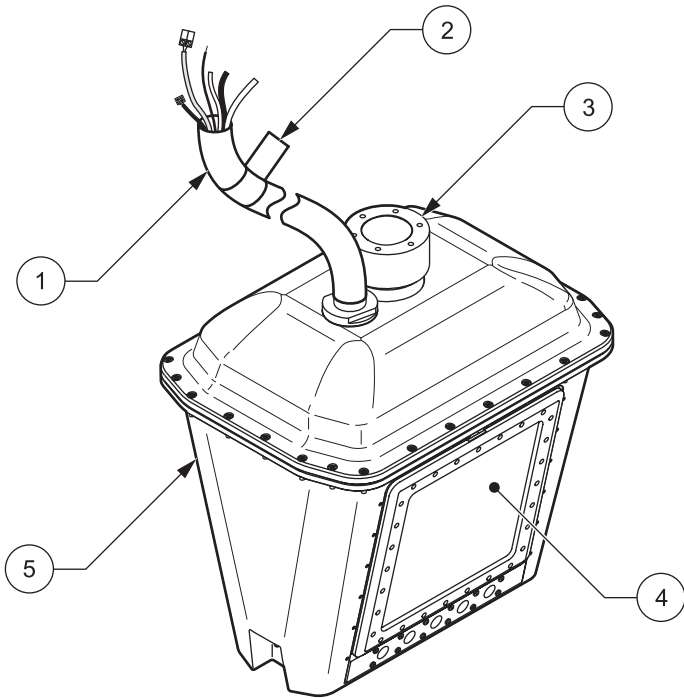


Figure 1 Filter Probe sc

1	Hose
2	Rating tag with model number, serial number, voltage and frequency information, and power consumption information
3	Pipe Mount Adapter
4	Filter
5	Filter Probe sc

2.2.1 Theory of Operation

The Filter Probe sc draws in liquid through a filtering system and then pumps this sample to an sc analyzer connected in a series. After the analysis of the sample, the analysis instrument pumps the sample (possibly mixed with chemicals) back to the tank sampled or to a drain.

A waste tank cleaning device ensures the filters remain porous. The Filter Probe sc has a compressed air tube that terminates underneath the filters. When compressed air flows out of the air openings underneath the filters, the rising air bubbles remove soiling from the filters. In this way the filters remain porous and manual cleaning is typically unnecessary.



### **DANGER**

**Only qualified personnel should conduct the tasks described in this section of the manual.**

Refer the appropriate analyzer manual for instructions on connecting the Filter Probe sc to the Analyzer and plumbing connection information.

### 3.1 Unpacking the Instrument

Standard items supplied:

- Filter Probe sc
- User Manual
- 2 Filters
- Tubing and Connector Set
- One Cleaning Sponge
- Sealing Cap

### 3.2 Installing the Filters

**Important Note:** Never immerse the Filter Probe sc in water without the filters installed. Unfiltered water could block the tubing in the Filter Probe sc.

**Important note:** Do not let the filters dry out, this will cause the filters to become unusable immediately and cannot be repaired.

**Important Note:** Never touch the filter surface or damage to the filter may occur.

1. Insert the filter on the lower end of the Filter Probe sc (Figure 2).
2. Press the filter onto the frame until it engages.
3. Repeat with the second filter on the other side.

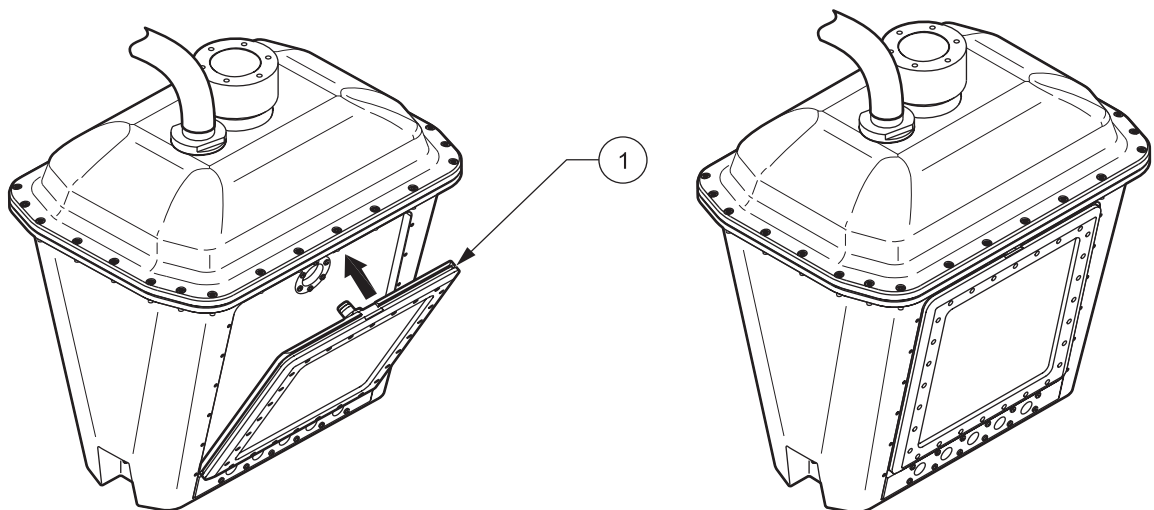


Figure 2 Installing the Filters

### 3.3 Mechanical Installation

Plan the mechanical installation before positioning posts or drill holes. Choose a suitable place to install the instrument. Refer to [Figure 3](#) for dimensions.

Cables will need to be removed regularly. Plan the mounting configuration accordingly. Place cables and tubing so they will not cause tripping and sharp bends.

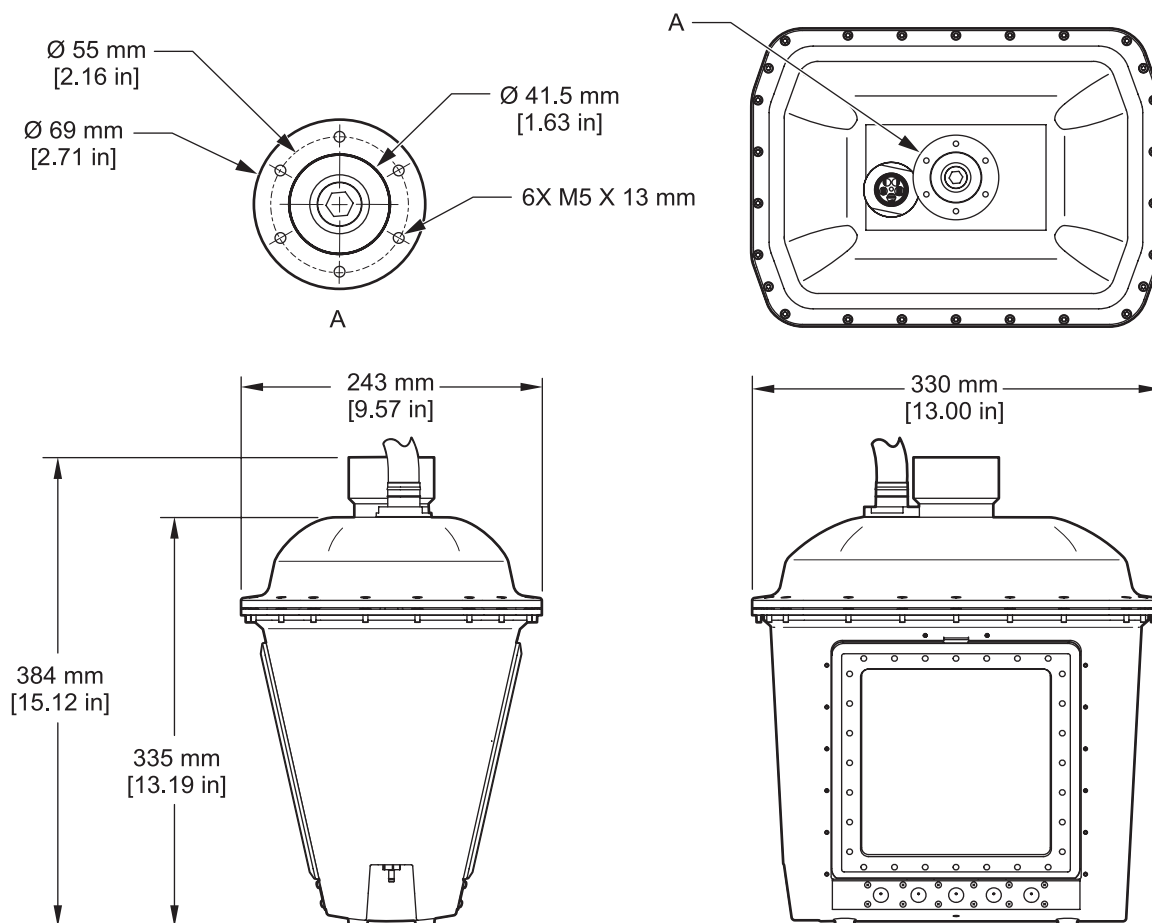


Figure 3 Filter Probe sc Dimensions

### 3.3.1 Mounting the Filter Probe into the Process Stream

Figure 4 illustrates the installation overview for the Filter Probe sc.

Use the fixed-point optional mounting hardware to install the Filter Probe sc into the sample stream. Refer to Figure 5 through Figure 7 for detailed mounting information.

#### 3.3.1.1 Installation Guidelines

- Only install the Filter Probe sc using an appropriate mounting system (e.g. fixed-point mounting).
- Only install the Filter Probe sc in flowing water with protection against flow.
- Install the Filter Probe sc so that it is held a minimum of 0.1 m and maximum of 3 m below the surface of the water.
- In case of frost, insulate the first 10 cm of the tubing if the top edge of the Filter Probe sc is not at least 20 cm below the surface of the water.
- Ensure the Filter Probe sc is not in contact with the base of the tank and does not hit the side walls.

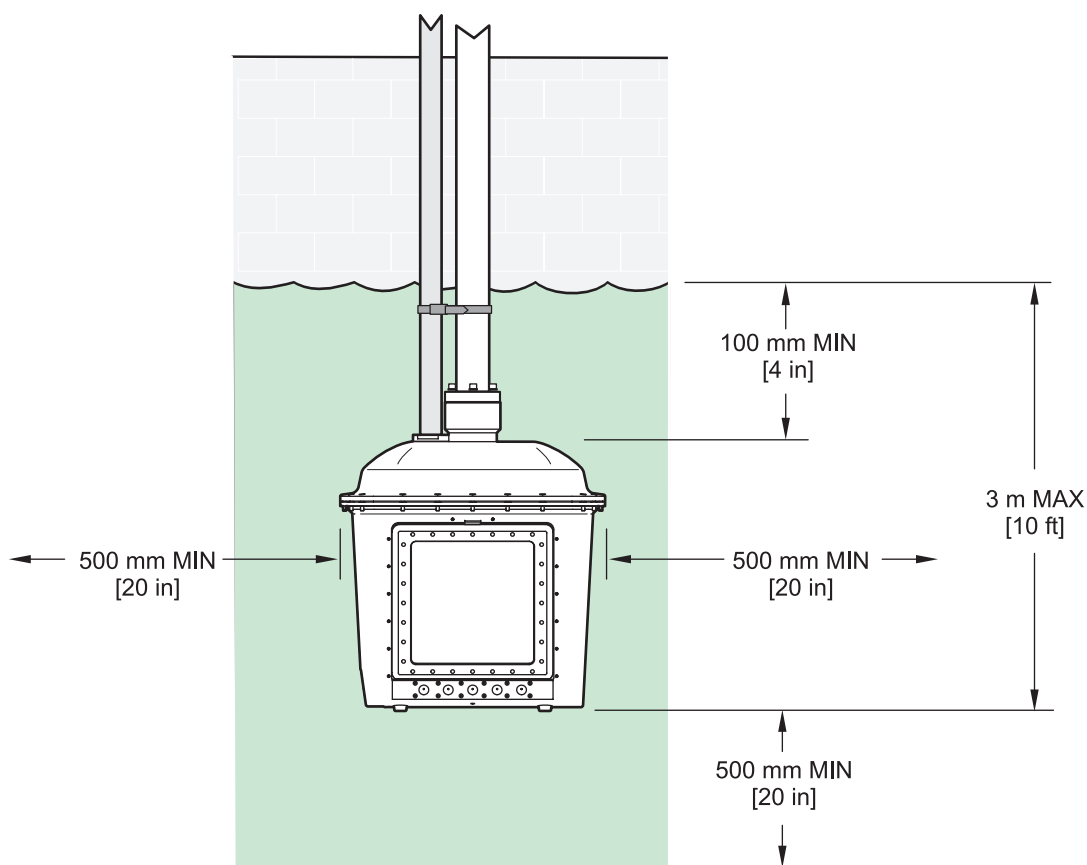


Figure 4 Installation Position for the Filter Probe sc

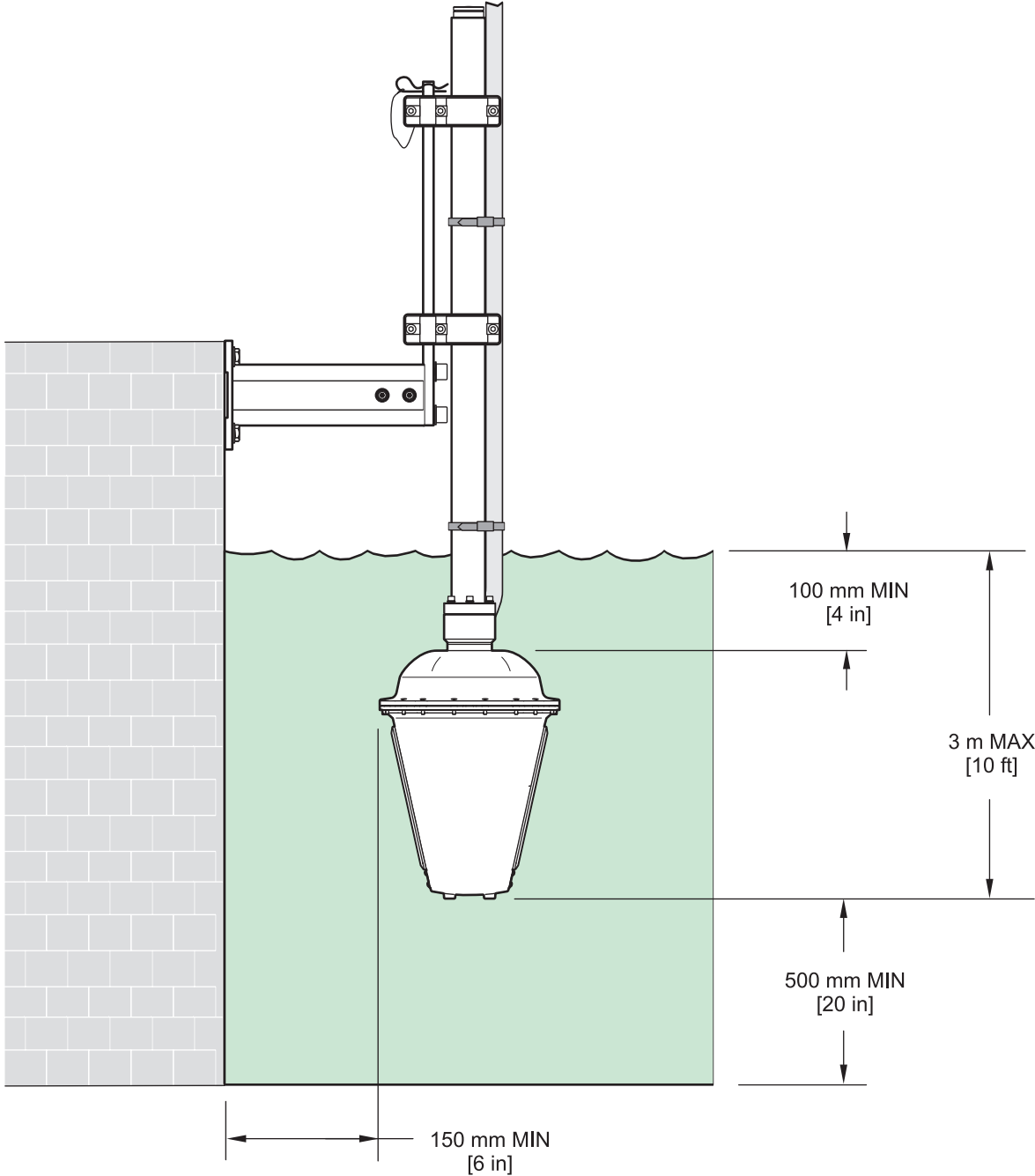


Figure 5 Fixed-point Final Assembly

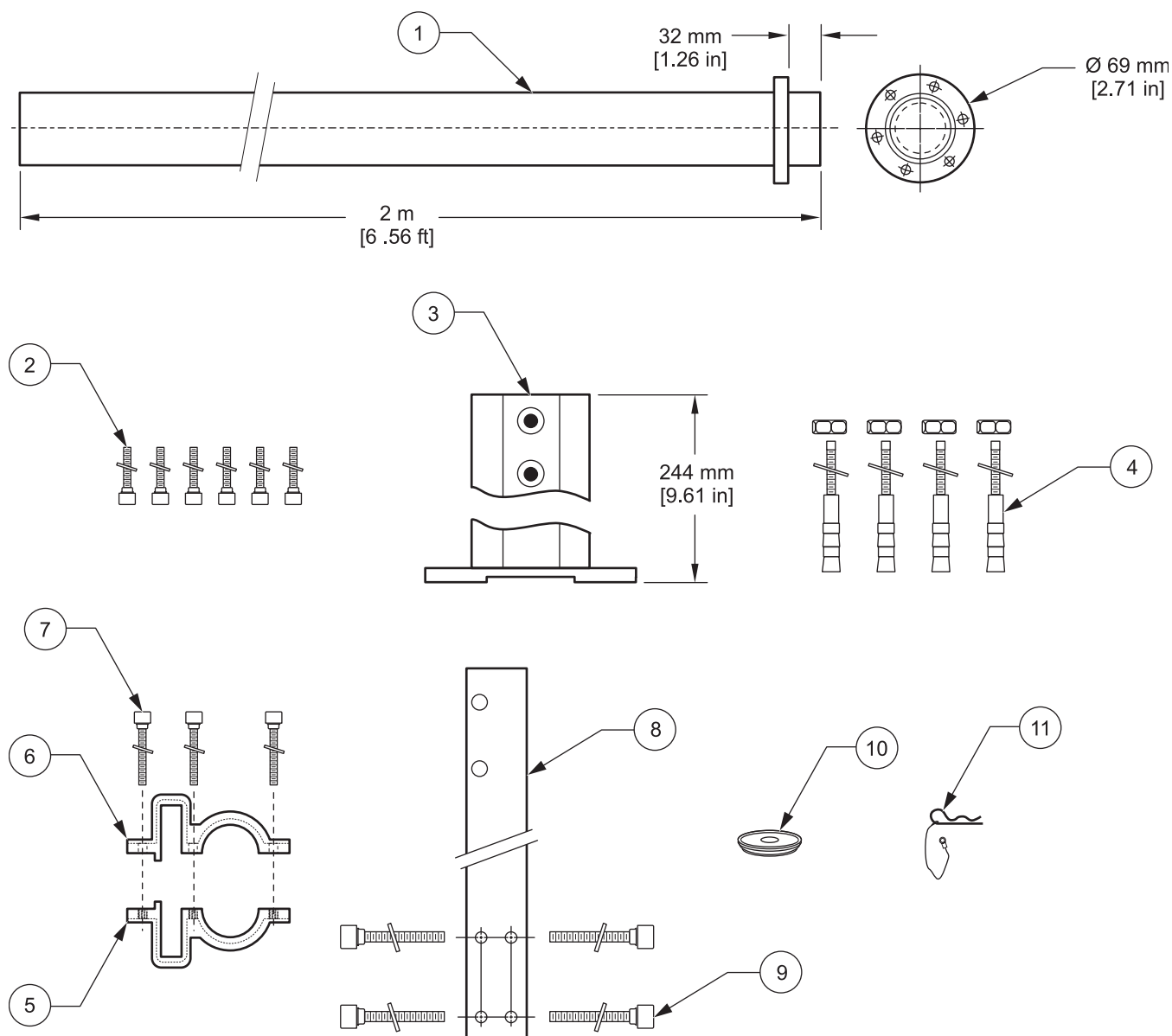


Figure 6 Fixed-point Mounting Parts (Cat.No. LZX414.00.50000)

1	Mounting Pipe	7	Socket Head Cap Screws M5 X 20 mm (6X)
2	Socket Head Cap Screws M5 X 16 mm (6X)	8	Flat Bar
3	Base	9	Socket Head Cap Screws M8 X 40 mm (4X)
4	Anchors (4X)	10	Plug
5	Clamp Half with Thread (2X)	11	Spring Cotter
6	Clamp Half (2X)		

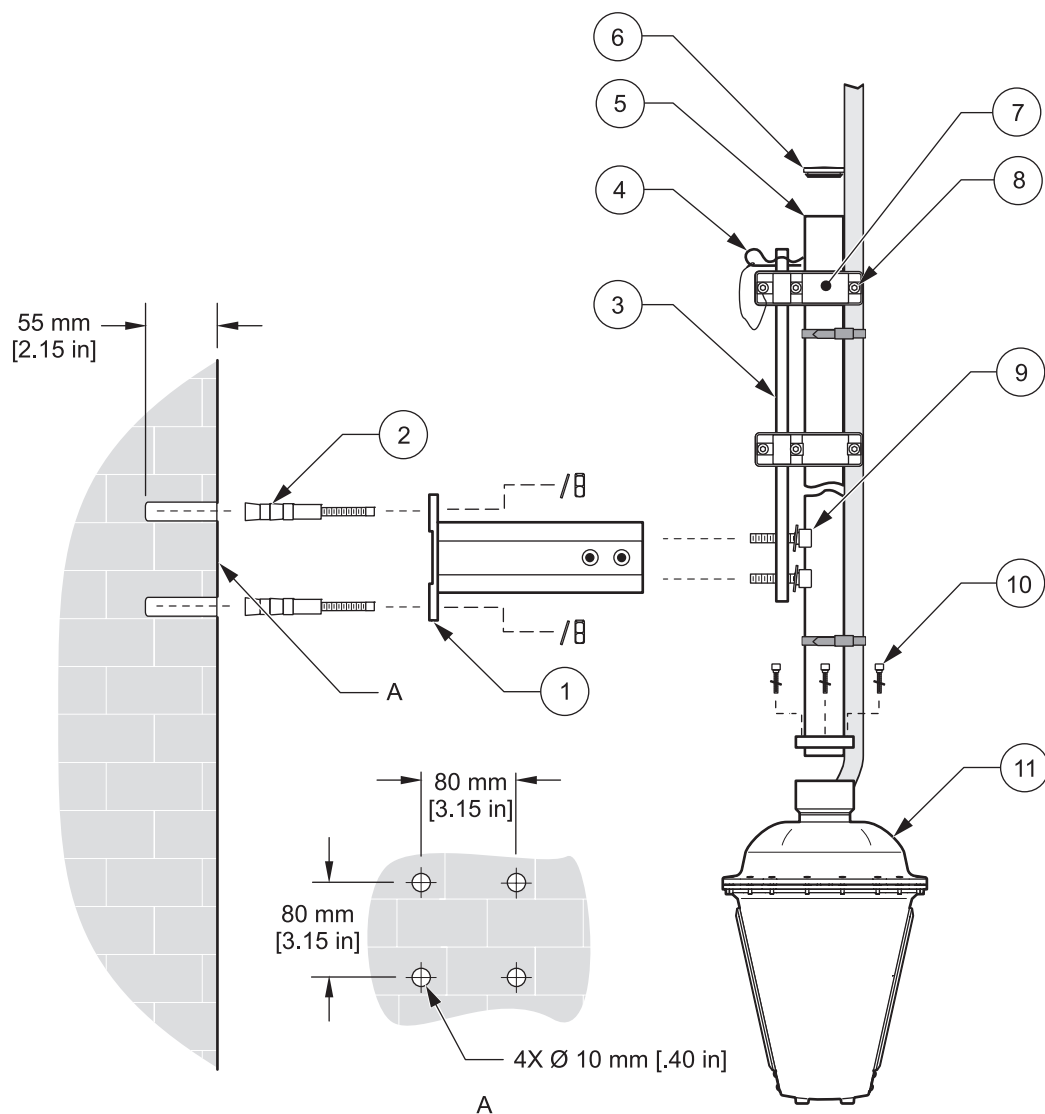


Figure 7 Fixed-point Mounting

1	Base	7	Clamp Assembly (2X)
2	Anchors (4X)	8	Socket Head Cap Screws M5 X 20 mm (6X)
3	Flat Bar	9	Socket Head Cap Screws M8 X 40 mm (4X)
4	Spring Cotter	10	Socket Head Cap Screws M5 X 16 mm (6X)
5	Mounting Pipe	11	Filter Probe sc
6	Plug		

### **DANGER**

***Only qualified personnel should conduct the tasks described of the manual.***

## 4.1 General Maintenance

- Regularly check the Filter Probe sc for mechanical damage.
- Regularly check the filters for mechanical damage.
- Regularly check all connections for leaks and corrosion.
- Regularly check all cables and tubing for mechanical damage.
- Clean the filters every 3 months or when the pressure drops below 0.45 bar.
- Replace the filters (Cat. No. LZY140) after one year.
- Clean the Filter Probe sc with a cloth. Use a brush for stubborn spots.

### 4.1.1 Cleaning and Replacing the Filters

#### **CAUTION**

***Review all MSDS information and use recommended safety measures to prevent exposure to potential chemical hazards.***

#### **CAUTION**

***For cleaning only use chlorine bleach (5-10%) OR hydrochloric acid (5%). Never use chlorine bleach and hydrochloric acid together. The risk of the formation of chlorine gas may occur.***

The filters are very delicate. Avoid contacting the filters with cleaning agents and soaps as these may damage the filters.

1. From SENSOR SETUP, select TEST/MAINT>SERVICE MODE and accept.
2. Remove the Filter Probe sc from the tank.
3. Clean the filters **carefully** using the supplied **damp** sponge. Do not use anything else to clean the filters. Use chlorine bleach (5 to 10%) **OR** hydrochloric acid (5%).
4. Carefully remove the filters from the holder using a screwdriver (Figure 8 ).
5. Insert the new or cleaned filters to the Filter Probe sc. Press the filters against the enclosure until it fits into place.
6. Place the Filter Probe sc back in the tank.
7. On the SENSOR SETUP menu on the controller, select TEST/MAINT and PREPUMPING PROBE and accept.
8. Wait until the pumping operation is complete. Use the Back arrow to leave the service state
9. Select NO/MEAS START when SERV. HOLD MODE? is displayed. From SENSOR SETUP menu select the MEASURING. Select ON and accept.

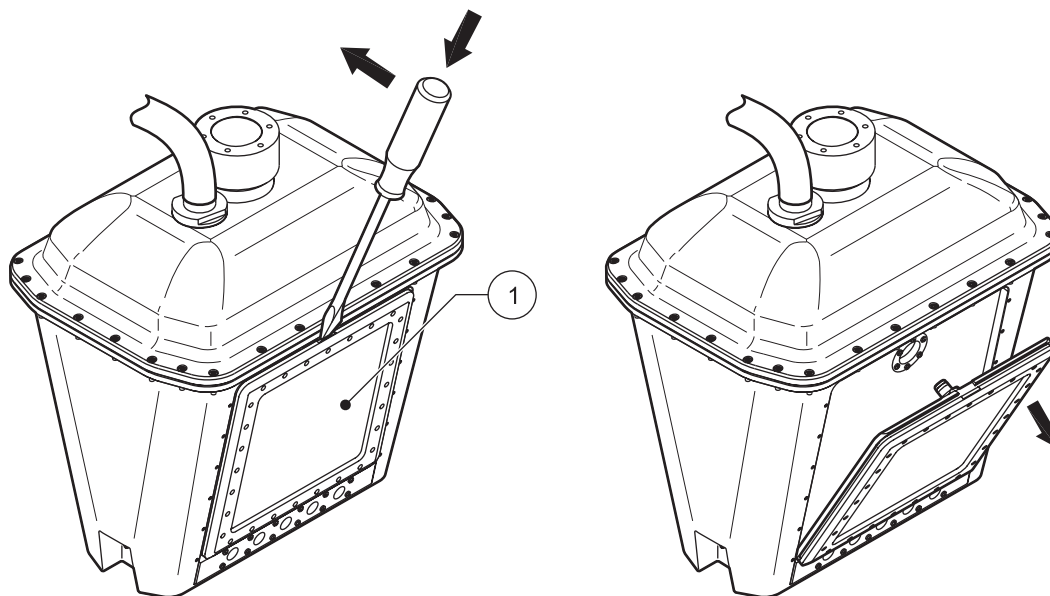


Figure 8 Removing the Filters

1 Filter

### 4.1.2 Replacing the Drain

If unused sample is disposed of through the Filter Probe sc, replace the drain (Cat. No. LZY139) after one year. The drain is warranted for one year.

1. Unscrew the drain from the bottom of the Filter Probe sc.
2. Screw the new drain to the bottom of the Filter Probe sc and hand-tighten. Do not overtighten.

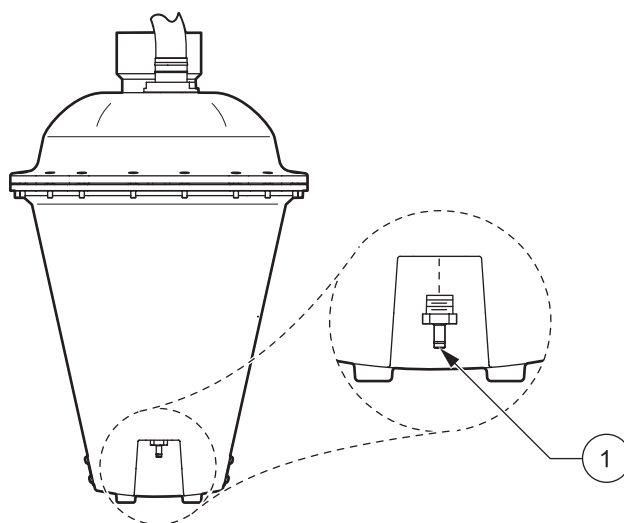


Figure 9 Changing the Drain

1 Drain



### 4.1.3 Replacing the Air Exhaust

Replace the air exhaust (Cat. No. LZY138) after a year. The air exhaust is warranted for one year.

1. Remove the 12 screws securing the air exhaust on one side of the Filter Probe sc. Remove the air exhaust from the Filter Probe sc. Retain the 12 screws.
2. Replace the exhaust and sealing and reattach to the Filter Probe sc using the 12 screws. Hand-tighten the 12 screws.
3. Follow steps 1-2 to replace the air exhaust on the other side of the Filter Probe sc.

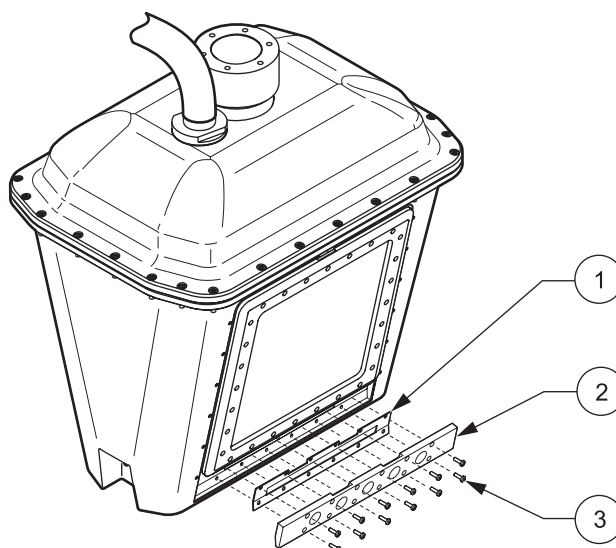


Figure 10 Changing the Air Exhaust

1	Sealing
2	Exhaust
3	Screws

## 4.2 Repair Maintenance

[Table 1](#) lists items that need to be maintained by service personnel ONLY. Contact the manufacturer for more information.

**Table 1 Repair Maintenance Items**

Description	When to Replace	Warranty
Set of replacement parts for sample pump (Pump membrane and valves)	1 year, with 5 minute analysis interval. Otherwise 2 years.	1 year

### 4.3 Taking Out of Operation

Take the Filter Probe sc out of operation if there is a risk of frost or to remove from operation for an extended period.

**Important Note:** *If the power supply to the controller is interrupted, frost damage may occur. Ensure that the instrument and tubing cannot freeze.*

1. Remove power from the analyzer. Refer to the appropriate analyzer user manual for more information.
2. Remove power from the Filter Probe sc.
3. Take the Filter Probe sc out of the process stream.

**Note:** *Do not let the filters dry out, as dry filters will become unusable immediately and cannot be repaired.*

4. Dismantle the filters, ([section 4.1.1 on page 15](#)). Store the filters in the plastic bag that it is was shipped with. Store used filters in the plastic bag with clean water added. Used filters must be kept wet or damage to the filter may occur.
5. Wrap the Filter Probe sc in protective film or a dry cloth and store in a dry location.

## Section 5 Troubleshooting

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### 5.1 Low Pressure Module

If the filters are blocked, the pressure value in the Filter Probe sc drops. Replace or clean the filters according to [Table 2](#). If the filters need to be replaced or cleaned:

1. Clean or replace the filters (see [section 4.1.1 on page 15](#)).
2. Check all relevant software settings. Refer to the AMTAX sc or PHOSPHAX sc User Manual for software and menu structure information.
3. If the problem still occurs, contact technical support.

**Table 2 Pressure Values**

Pressure Value	State	Action
< 0.25 bar	Blocked	Replace filters
0.25 bar to 0.45 bar	Soiled	Clean filters
> 0.45 bar	OK	No action



## Section 6     How to Order

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### U.S.A. Customers

**By Telephone:**

6:30 a.m. to 5:00 p.m. MST  
Monday through Friday  
(800) 227-HACH (800-227-4224)

**By Fax:**

(970) 669-2932

**By Mail:**

Hach Company  
P.O. Box 389  
Loveland, Colorado 80539-0389 U.S.A.  
**Ordering information by e-mail:** [orders@hach.com](mailto:orders@hach.com)

### Information Required

- Hach account number (if available)
- Your name and phone number
- Purchase order number
- Brief description or model number
- Billing address
- Shipping address
- Catalog number
- Quantity

### International Customers

Hach maintains a worldwide network of dealers and distributors. To locate the representative nearest you, send an e-mail to: [intl@hach.com](mailto:intl@hach.com) or contact:

**Hach Company World Headquarters;** Loveland, Colorado, U.S.A.  
Telephone: (970) 669-3050; Fax: (970) 669-2932

### Technical and Customer Service (U.S.A. only)

Hach Technical and Customer Service Department personnel are eager to answer questions about our products and their use. Specialists in analytical methods, they are happy to put their talents to work for you.

Call 1-800-227-4224 or e-mail [techhelp@hach.com](mailto:techhelp@hach.com)

## Section 7      Repair Service

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**Authorization must be obtained from Hach Company before sending any items for repair. Please contact the Hach Service Center serving your location.**

**In the United States:**

Hach Company  
Ames Service  
100 Dayton Avenue  
Ames, Iowa 50010  
(800) 227-4224 (U.S.A. only)  
FAX: (515) 232-3835

**In Canada:**

Hach Sales & Service Canada Ltd.  
1313 Border Street, Unit 34  
Winnipeg, Manitoba  
R3H 0X4  
(800) 665-7635 (Canada only)  
Telephone: (204) 632-5598  
FAX: (204) 694-5134  
E-mail: [canada@hach.com](mailto:canada@hach.com)

**In Latin America, the Caribbean, the Far East,  
Indian Subcontinent, Africa, Europe, or the Middle East:**

Hach Company World Headquarters,  
P.O. Box 389  
Loveland, Colorado, 80539-0389 U.S.A.  
Telephone: (970) 669-3050  
FAX: (970) 669-2932  
E-mail: [intl@hach.com](mailto:intl@hach.com)

## Section 8 Limited Warranty

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Hach Company warrants its products to the original purchaser against any defects that are due to faulty material or workmanship for a period of one year from date of shipment unless otherwise noted in the product manual.

In the event that a defect is discovered during the warranty period, Hach Company agrees that, at its option, it will repair or replace the defective product or refund the purchase price excluding original shipping and handling charges. Any product repaired or replaced under this warranty will be warranted only for the remainder of the original product warranty period.

This warranty does not apply to consumable products such as chemical reagents; or consumable components of a product, such as, but not limited to, lamps and tubing.

Contact Hach Company or your distributor to initiate warranty support. Products may not be returned without authorization from Hach Company.

### Limitations

This warranty does not cover:

- Damage caused by acts of God, natural disaster, labor unrest, acts of war (declared or undeclared), terrorism, civil strife or acts of any governmental jurisdiction
- Damage caused by misuse, neglect, accident or improper application or installation
- Damage caused by any repair or attempted repair not authorized by Hach Company
- Any product not used in accordance with the instructions furnished by Hach Company
- Freight charges to return merchandise to Hach Company
- Freight charges on expedited or express shipment of warranted parts or product
- Travel fees associated with on-site warranty repair

This warranty contains the sole express warranty made by Hach Company in connection with its products. All implied warranties, including without limitation, the warranties of merchantability and fitness for a particular purpose, are expressly disclaimed.

Some states within the United States do not allow the disclaimer of implied warranties and if this is true in your state the above limitation may not apply to you. This warranty gives you specific rights, and you may also have other rights that vary from state to state.

This warranty constitutes the final, complete, and exclusive statement of warranty terms and no person is authorized to make any other warranties or representations on behalf of Hach Company.

### Limitation of Remedies

The remedies of repair, replacement or refund of purchase price as stated above are the exclusive remedies for the breach of this warranty. On the basis of strict liability or under any other legal theory, in no event shall Hach Company be liable for any incidental or consequential damages of any kind for breach of warranty or negligence.





## Section 9 Replacement Parts and Accessories

### 9.1 Options and Accessories

Description	Cat. No.
Fixed-point Mounting for Filter Probe sc	LZX414.00.50000
Rail Mounting for Filter Probe sc	LZX414.00.60000
Protection Against Flow	LZY317
Sponge	EZZ062
Set of Small Parts; includes 2 spring cotter with chains + 6 screws	LZY245

### 9.2 Replacement Parts (Refer to [Figure 11 on page 26](#) and [Figure 12 on page 27](#))

Item	Description	Cat. No.
—	Set of Seals for Filter Probe sc; includes. O-ring, connector pressure sensor	LZY121
—	Set of Wear Parts for Sample Pump; includes membrane, valves, screws	LZY130
—	Tubing for Filter Probe sc; FEP tubing 1 x 3.1 mm, 1.00 m	LZY131
—	Air tubing for Filter Probe sc; 4/6 mm, PUR-H	LZY132
1	Sample Tubing, 230 V, 5 m; includes top cover and adaptor	LZY112
1	Sample Tubing, 115 V, 5 m; includes top cover and adaptor	LZY113
1	Sample tubing 230 V, 10 m; includes top cover and adaptor	LZY114
1	Sample tubing 115 V, 10 m; includes top cover and adaptor	LZY115
2	Top Cover, Filter Probe sc (plastic part)	LZY116
3	Enclose, Filter Probe sc (plastic part) without top cover	LZY117
5	Sealing Top Cover for Filter Probe sc	LZY119
6	Set of Screws for Filter Probe sc (28 pieces)	LZY120
9	Adaptor Suction Side	LZY128
—	Set of Screws (4 of each type used)	LZY314
10	Adaptor, physical page	LZY129
12	Card Filter Probe sc with Pressure Sensor ZBA804	YAB042
13	Set of Fittings, 3.2 mm (4 pieces)	LZY111
14	T-fitting 4/6 mm	LZY133
15	Fitting for Tubing DN 4/6	LZY134
16	Elbow Fitting 4/6 mm	LZY135
17	Fitting for Exhaust Valve; includes O-ring	LZY136
18	Humidity Sensor, includes connector	LZY137
20	Exhaust (copper)	LZY139
21	Adaptor for Filter Probe sc with Flange and Screws	LZY118
22	Safety Cover Filter Probe sc, includes pads and screws	LZY122
23	Exhaust Valve 230 V; includes cable, connector, fittings, screws	LZY123
23	Exhaust Valve 115 V; includes cable, connector, fittings, screws	LZY124
24	Sample Pump 230 V; includes sleeve cable and connector	LZY125
24	Sample Pump 115 V; includes sleeve cable and connector	LZY126
25	Sleeve Nut with Sealing	LZY127
26	Exhaust, (2 pcs.) for air cleaning; includes sealing/screws	LZY138
27	Coupling Piece, includes screws	LZY265
28	Locking screw probe adaptor	LZY213
29	Seal for Filters; O-ring 7.50 x 2.50 (4 pieces)	LZY142
30	Filters for Filter Probe	LZY140
31	Adaptor for Filters, including sealing	LZY141
32	Connection Tubing for Filter Probe sc; 4/6 mm, PTFE 25 cm	LZY253

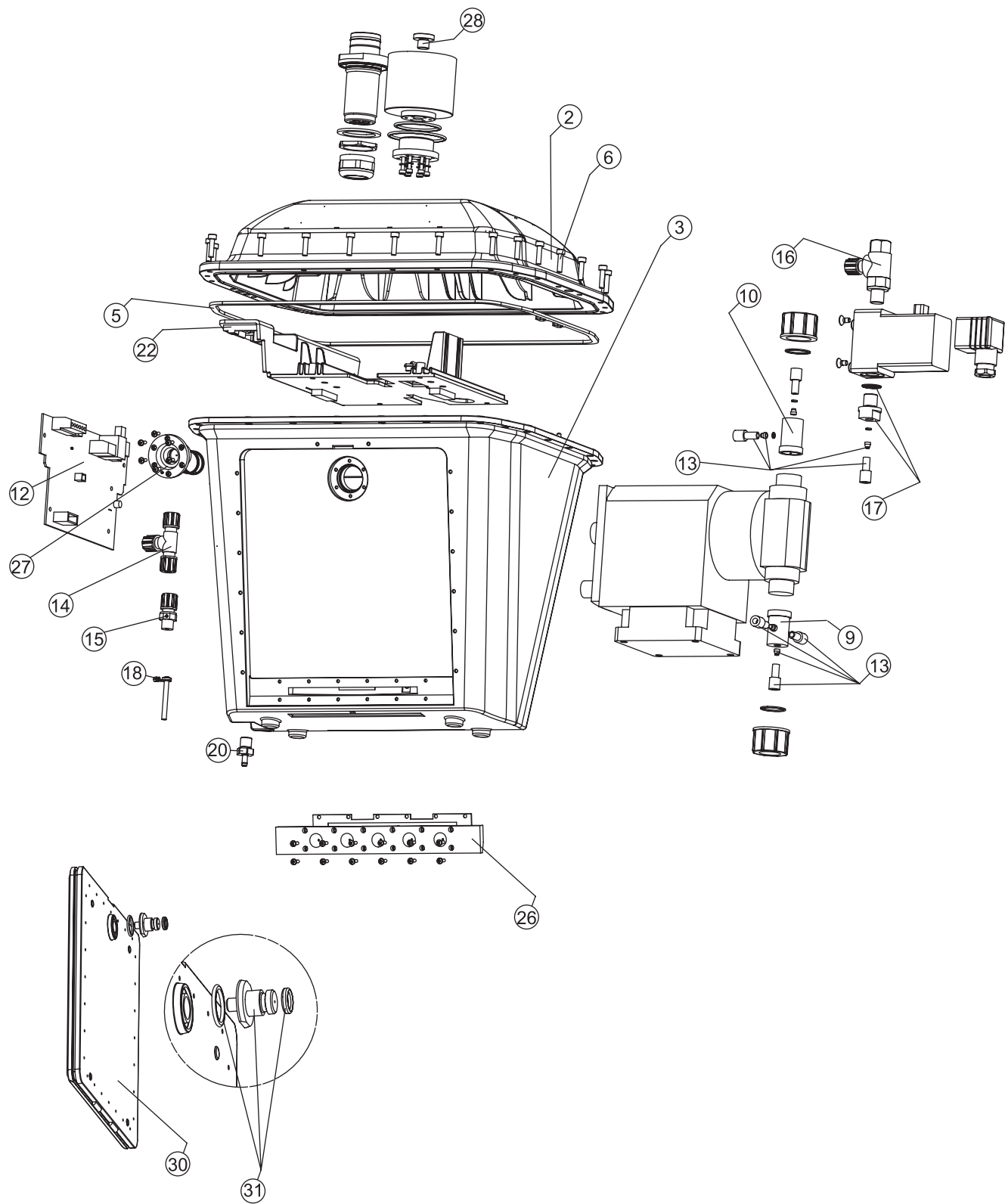


Figure 11

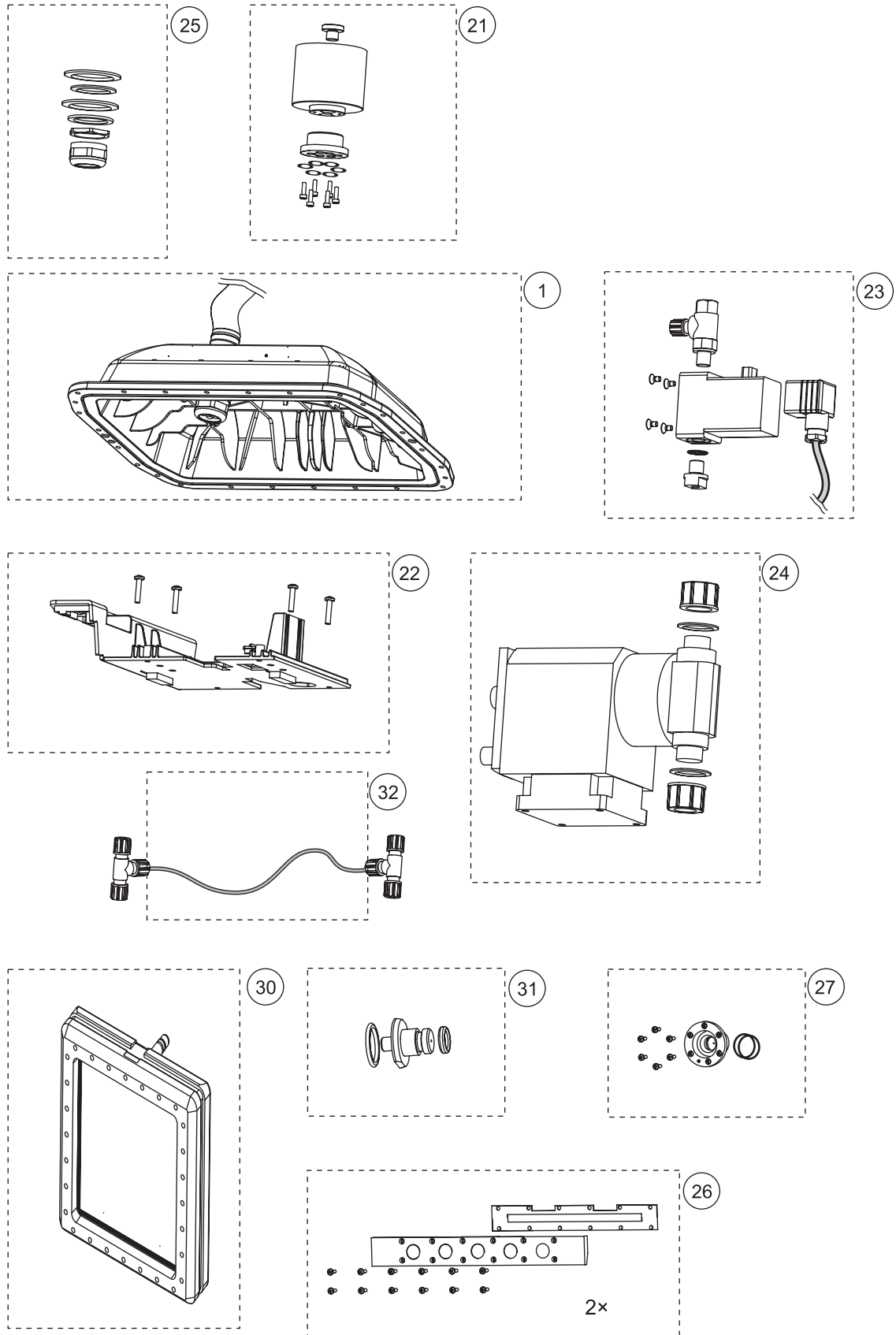


Figure 12

